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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,614	07/07/2003	Erik Essers	FRM-03801	7473

7590

05/27/2004

Patent Group
Choate, Hall & Stewart
Exchange Place
53 State Street
Boston, MA 02109-2804

EXAMINER

LEYBOURNE, JAMES J

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 05/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/614,614

Applicant(s)

ESSERS ET AL.

Examiner

James J. Leybourne

Art Unit

2881

[Handwritten mark]

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 26-47 is/are rejected.
- 7) ☒ Claim(s) 23-25 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Abstract Objected To: Minor Informalities

1. The abstract of the disclosure is objected to because it is too long. The abstract should be 150 words. The current abstract is 217 words.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3-6, 8, 34, 42, 44 and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. (USPN 6646719). In figure 4, Lee et al. disclose a support assembly for an exposure apparatus that comprises a plurality of hollow bodies.

The hollow bodies extend in multiple directions.

Considering bodies **46A**, **58B** and **46C**, it is seen that each body has a length and, from Fig 5B, the length of **50B** is greater than **46A** or **46B**.

The cross section of body **46C** that is perpendicular to body **50B** is substantially triangular. It also has openings in the sides to accept the "arms".

For body **58B** the top and side have an edge with a cross section that is in the form off the letter "L".

The boundary of body **50B** is circular (curved).

Base element **58A** has two arms, **46A** and **46B** that form a V-shape.

Base element **58A** has a front wall and back wall and the arms extend from the back and the arms are hollow.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 7, 9-22, 26-41 and 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. as applied to claim 1 above, and further in view of Krisch et al. (USPN 4044256).

Regarding claims 26-30, 41, 44 and 46, Lee et al. do not teach use of footings and do not discuss the eigenfrequencies of the apparatus.

Lee et al. do not teach the detailed structures of claims 2, 7, 9-22, 31-33, 34-41

Lee et al. also do not teach that the particle optical column is suspended near or above the center of gravity of the column as cited in claim 43.

Kirsch et al. disclose a support stand for a particle-beam microscope comprising a horizontal base member and a flexure-resistant vertical support member disposed on the base member. Base member 3 is disposed on five resilient, vibration-damping pad members, i.e. footings (column 2, lines 63-65). The pad members 9 and 10 may comprise rubber pads having resilient as well as vibration-damping characteristics. Alternatively, pneumatic springs including suitable damping means may also be utilized (column 3, lines 55-58).

Regarding claims 26-30, Kirsch et al. teach the resonant frequency (eigenfrequency) of the base, should be much greater than the frequencies of the floor vibration (5 Hz), but much lower than the resonance frequency of the optical column (1 kHz) and may comprise, for example, 100 Hz (column 4, lines 40-44).

Regarding claims 2, 9-22 and 31-33, Kirsch et al. teach using a support stand 1 comprising a hollow, rectangular-shaped vertical support member 2 and the particle beam microscope housing is mounted on support member (column 2, lines 50-55).

Regarding claim 43, the connection member 8 on which microscope housing 4 is mounted is fastened to support member 2 at approximately the height of the center of gravity of the microscope housing (column 3, lines 51-55).

Regarding claims 31-41, Kirsch et al. teach do not teach the detailed construction of the support arrangements cited in the application's claims. However, they teach the resonant frequencies of the support stand, including the pad members, are determined by the mass or moment of inertia of the support stand and the elastic properties of the pad members, assuming the support stand above the pad members is rigid. The resonant frequencies may be determined by the design of the support stand (column 4, lines 32-33). The detailed structure of the support stand is a matter of design choice.

Regarding claims 15, 35, and 36 it is well known to use welding to integrate parts in construction of rigid support systems and to use parts that are cast.

It would be obvious to one of ordinary skill in the art to modify the base of Lee et al. to include a rigid support structure designed to adjust eigenfrequencies to reduce vibrations transmitted from the floor and to add vibration isolation pads and to support the column near the center of gravity, as taught by Kirsch et al. because Lee et al. teach that mechanical vibrations and deformations in the support assembly of the exposure apparatus can influence the accuracy of the exposure apparatus (column 1, lines 34-37).

Allowable Subject Matter

6. Claims 23-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art fails to teach or fairly suggest using bedding devices between a base and a supporting structure that holds a particle optical column to provide vibration isolation between the base and the optical column.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James J. Leybourne whose telephone number is (571) 272-2478. The examiner can normally be reached on M-F 9:00- 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/614,614
Art Unit: 2881

Page 7

May 21, 2004

JJL

Nikita Wells
NIKITA WELLS
PRIMARY EXAMINER 05/24/04